

SOME

The 8th International Symposium
on Ship Operations, Management, and Economics



130 YEARS

Tuesday, March 7, 2023 – Symposium Day #1
Eugenides Foundation Auditorium, Athens, Greece

08:15 – 09:00 REGISTRATION

09:00 – 09:20 Opening Addresses

- A. Papanikolaou, *SOME 2023 Chair*
- J. Kokarakis, *SNAME Greek Section Chair*
- R. Spaulding, *SNAME President*
- I. Plakiotakis, *Minister of Maritime Affairs and Insular Policy*
- G. Pateras, *President of Hellenic Chamber of Shipping*

09:20 – 10:00 Keynote Speech I

- Shipping Decarbonization: A Glimmer of Hope?**
- H. Psaraftis, *Professor, Technical University of Denmark*

10:00 – 11:00 Industry Panel & Discussion No.1: Women in Maritime

- Moderator:** *Niki Kalogiratou, Chief Communications Officer, Capital Ship Management Corp*
- Joanna Koukouli, Co-Global Claims & Managing Director, The American P&I Club*
- Maria Kyratsoudi, Business Development Manager, American Bureau of Shipping (ABS)*
- Irene Notias, Country Manager, Sing Fuels Pte Ltd (Hellas)*
- Matina Petrou, South Europe New Constructions Sales Lead, Lloyd's Register*

11:00 – 11:20 Coffee Break

11:20 – 12:35 Session No.1: Emission Control, CII Compliance

- 11:20 – 11:35** **Monitoring Shipping Emissions with Various Techniques Towards Ensuring Compliance to the New Regulations: The SCIPPER Project**
¹L. Ntziachristos, ¹S. Mamarikas, ²R. Verbeek, ¹A. Grigoriadis | ¹*Aristotle University of Thessaloniki*, ²*TNO*
- 11:35 – 11:50** **From STEAM to Machine: Emissions Control in the Shipping 4.0 Era**
^{1,2,4}D. Kaklis, ¹T. Varelas, ²I. Varlamis, ³P. Eirinakis, ⁴G. Giannakopoulos, ⁴C. Spyropoulos |
¹*Danaos Research Center*, ²*Harokopio University of Athens*, ³*University of Piraeus*, ⁴*NCSR Demokritos*
- 11:50 – 12:05** **Concept Assessment of a Marine Carbon Capture System for Vessel Regulatory Lifetime Extension**
¹I. Beltsidis, ²C. Georgopoulou, ^{1,2}G. Dimopoulos, ²L. Koukoulopoulos |
¹*National Technical University of Athens*, ²*DNV Maritime R&D and Advisory*
- 12:05 – 12:20** **CII Compliance: Effects of Operational and Technological Measures on Current Levels and Time Development of Calculated CII**
¹A. Trakakis, ¹N. Daremas, ²M. Papatheodorou, ³S. Chatzinikolaou, ⁴C. Papadopoulos, ⁴L. Kaiktsis |
¹*RINA Classification Society*, ²*ShipReality Inc.*, ³*University of Piraeus*, ⁴*National Technical University of Athens*
- 12:20 – 12:35** **Questions & Discussion**

12:35 – 12:50 Platinum Sponsor Presentation

Alba Business School

12:50 – 13:50 Light Lunch Break – Sponsored by Polembros Shipping

13:50 – 15:05 Session No.2: Decarbonization, Alternative Fuels

- 13:50 – 14:05** **Handling of Ammonia Accidental Fuel Leakages on Ships**
M. Bucelli, B. Johnsen, I. Hjorth | *SINTEF Energy Research AS*
- 14:05 – 14:20** **The Potential of Methanol and Ammonia to Decarbonize Shipping: Impact on GHG and Other Pollutants**
G. Voniati, A. Dimaratos, S. Kyklis, G. Koltsakis, L. Ntziachristos | *Aristotle University of Thessaloniki*
- 14:20 – 14:35** **Modeling Intermediate and Alternative Fuel Emissions in Large Two-stroke Engines: Towards an Accurate Assessment of Decarbonization Impact**
¹V. Kostoulas, ¹G. Pontikakos, ²I. Sklias, ²A. Karvountzis-Kontakiotis, ¹L. Kaiktsis |
¹*National Technical University of Athens*, ²*Winterthur Gas & Diesel (WinGD)*
- 14:35 – 14:50** **Life-cycle Assessment and Costing of Alternative Fuels and Emission Reduction Technologies**
N. Ventikos, P. Sotiralis, M. Annetis | *National Technical University of Athens*
- 14:50 – 15:05** **Questions & Discussion**

15:05 – 15:20 Coffee Break

15:20 – 16:35 Session No.3: Digital Twins, Performance Optimization

15:20 – 15:35

Estimation of Wind, Waves and Fouling Effect on Ships from Full Scale and Hindcast Data

D. Georgousis, K. Nielsen, J. Petersen, A. Adveev, E. Arvanitaki, S. Tuymetov |

Vessel Performance Solutions ApS

15:35 – 15:50

Integrated Ship Energy Flowchart: A Digital Twin to Mitigate GHG Emissions

E. Yfantis, C. Ioannou, A. Paradeisiotis | *Cyprus Marine & Maritime Institute*

15:50 – 16:05

Time Series Anomaly Detection and Forecasting for Digital Twins in Green Shipping

L. Avgeridis, K. Lentzos, D. Skoutas, I. Emiris | *ATHENA Research Center*

16:05 – 16:20

The Development of an Accurate Digital Twin for Operational Performance Optimization

¹S. Harries, ²J. Brunswig, ²S. Gatchell, ¹S. Hauschulz, ²A. Schumacher, ¹F. Thies, ²J. Marzi |

¹FRIENDSHIP SYSTEMS, ²Hamburg Ship Model Basin (HSVA)

16:20 – 16:35

Questions & Discussion

16:35 – 16:40 Day 1 Closing Remarks

A. Papanikolaou, *SOME 2023 Chair*

Wednesday, March 8, 2023 – Symposium Day #2 Eugenides Foundation Auditorium, Athens, Greece

09:00 – 09:05 Day 2 Opening Remarks

A. Papanikolaou, *SOME 2023 Chair*

09:05 – 09:45 Keynote Speech II

Maritime Training in Soft or Hard Skills?

S. Hatzigrigoris, *Advanced Engineering Services*

09:45 – 11:00 Session No.4: Ship Resistance & Propulsion for Green Shipping

09:45 – 10:00 Recent Progress on the Transparent Prediction of the Added Resistance and Powering of a Ship in Waves

¹S. Liu, ²A. Papanikolaou | ¹Nanyang Technological University, Singapore, ²National Technical University of Athens

10:00 – 10:15 Numerical Analysis of the Impact of the Bow Thruster Opening on a Fast Catamaran's Resistance

S. Duman, E. Boulougouris, M. Z. Aung, X. Xu, A. Nazemian | *Strathclyde University*

10:15 – 10:30 Extensive Hydrodynamic Optimization Studies for a Series of Small Electric Catamaran Ferries

A. Kanellopoulou, G. Zaraphonitis, G. Grigoropoulos, D. Liarokapis | *National Technical University of Athens*

10:30 – 10:45 Medstrom: Design and Operation of the First Zero-emission Fast Catamaran

¹A. Papanikolaou, ²M. Dahle, ³E. Tolo, ⁴Y. Xing-Kaeding, ⁵A. Prinz, ⁶F. Jensen, ⁷E. Boulougouris,

¹A. Kanellopoulou, ¹G. Zaraphonitis, ⁸C. Jürgehake, ⁸T. Seidenberg |

¹National Technical University of Athens, ²Kolumbus AS, ³Fjellstrand AS, ⁴Hamburgische Schiffbau-Versuchsanstalt GmbH, ⁵Servogear, ⁶Wärtsilä, ⁷University of Strathclyde, ⁸Fraunhofer IEM

10:45 – 11:00 Questions & Discussion

11:00 – 11:20 Coffee Break

11:20 – 11:30 Platinum Sponsor Presentation

MAN Energy Solutions

11:30 – 12:45 Session No. 5: Ship Propulsion, Autonomous Shipping

11:30 – 11:45 Energy-minimizing Kinematics for Actively Morphing Flapping-foil Thrusters

D. Anevlavi, E. Filippas, K. Belibassakis | *National Technical University of Athens*

11:45 – 12:00 Augmenting Ship Propulsion in Waves by Flapping-foil Thrusters

K. Belibassakis | *National Technical University of Athens*

12:00 – 12:15 Facing Challenges Raised in Designing Battery Based Green Ships

J. Prousalidis, E. Sofras, P. Vlachos | *National Technical University of Athens*

12:15 – 12:30 The Logistics of Autonomous Shipping and the AEGIS Project

¹H. Psaraftis, ²T. Zis, ¹M. Reche Vilanova | ¹*Technical University of Denmark*, ²*Cyprus University of Technology*

12:30 – 12:45 Questions & Discussion

12:45 – 13:30 Light Lunch Break – Sponsored by Polembros Shipping

13:30 – 14:30 Industry Panel & Discussion No.2: Electrification in Shipping

Moderator: *J. Prousalidis, National Technical University of Athens*

A. Papanikolaou, National Technical University of Athens: *The “Medstraum” Project: Design and Operation of the First Zero Emission High-Speed Catamaran*

G. Dimopoulos, National Technical University of Athens: *Overview of Electric Driven Ships - Some Lessons Learnt*

P. Scialla, LRS: *Implementing Battery Swapping in Battery Powered Ships: The “Current Direct” Project*

C. Gerakarakis, PPA: *The Ports Supporting the Electrification of Ships: Studying the Implementation of Shore-to-Ship Connection in the Port of Piraeus*

A. Manos, HEDNO SA: *The Initiatives of the Hellenic Power Distribution Network Operator to Support the Electrification of the Greek Maritime Sector*

14:30 – 16:00 Session No.6: Ship Design and Engineering, Marine Pollution

14:30 – 14:45 High Fidelity Finite Element Modeling of Complex Ship Structures: The Particular Case of a Passenger Vessel

P. Ntaoularis, N. Sillionis, K. Anyfantis | *National Technical University of Athens*

14:45 – 15:00 Solution Space and Optimality Concerns for the Shafting System Alignment of a Typical Bulk Carrier

P. Theofilis, G. Rossopoulos, C. Papadopoulos | *National Technical University of Athens*

15:00 – 15:15 Dilating Disk Valve - A New High Efficiency Control Valve

J. Guedesse, B. Re, W. Velkoff | *Curtiss-Wright – Target Rock*

15:15 – 15:30 Microplastics and their Impact on the Marine Environment

¹J. Kokarakis, ²E. Kokarakis, ³E. Ladakis, ⁴H. Petrakakos | ¹*Bureau Veritas*,
²*Michigan State University*, ³*National Kapodistrian University of Athens*, ⁴*P&P Marine Consultants Inc.*

15:30– 16:00 Questions & Discussion

16:00 – 16:15 Coffee Break

16:15 – 18:15 Session No.7: Data Science, Real-time Monitoring

16:15 – 16:30 Challenges on Taking Advantage of High Frequency Data Analytics to Address Environmental Challenges in Maritime Sector

¹S. Katsikas, ¹G. Manditsios, ²F. Dalmiras, ¹G. Sakalis, ¹G. Antonopoulos, ¹A. Doulgeridis, ²D. Mouzakis |
¹*Metis Cybertechnology S.A.*, ²*Andriaki Shipping Co. Ltd.*

16:30 – 16:45 Failure Knowledge Graphs

B. Vučinić | *MA-CAD*

16:45 – 17:00 In-cylinder Pressure Prediction for Marine Engines Using Machine Learning

C. Patil, G. Theotokatos, K. Milioulis | *University of Strathclyde*

17:00 – 17:15 Fault Classification and Diagnosis for Rotating Equipment Using Machine Learning Algorithms

D. Emiris | *University of Piraeus*

17:15 – 17:30 From Preventive to Predictive Maintenance of Ship Hulls: The Role of SHM

N. Sillionis, K. Anyfantis | *National Technical University of Athens*

17:30 – 17:45 An Investigation on the Effect of Sea Currents on Weather Routing Optimisation

A. Kytariolou, N. Themelis | *National Technical University of Athens*

17:45 – 18:00 Short-term Optimal Ship Routing via Reliable Satellite Current Data

A. Ioannou, E. Moschos, B. Le Vu, A. Stegner | *AMPHITRITE, X-Novation Center*

18:00 – 18:15 Questions & Discussion

18:15 – 18:20 Closing Remarks

A. Papanikolaou, *SOME 2023 Chair*